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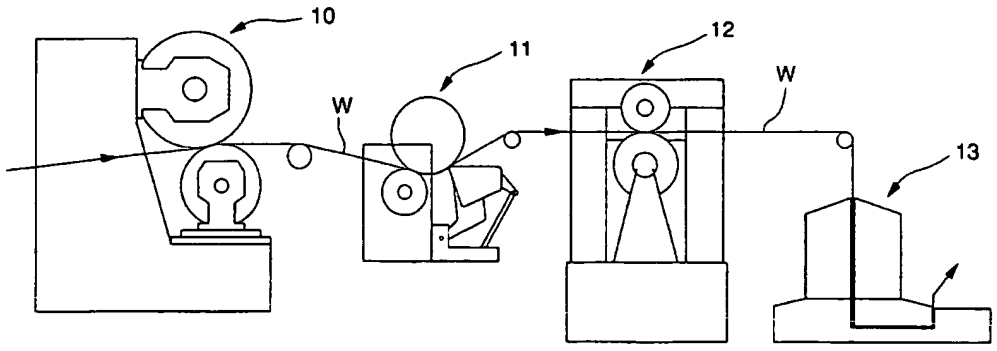
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD FOR FINISHING BOARD



(57) Abstract: The invention relates to a method for finishing board, especially recycled board (WLC). In the method, a board web (W) is first subjected to machine calendering (10). Next, the web is subjected to pre-coating (11). Then the web is driven through a long-nip calender (12) and further to an actual coating station/stations (13) for applying one or more coating layers to the web surface. Finally, the web is subjected to calender finishing (14).

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Method for finishing board

The present invention relates to a method for finishing board, especially recycled board (WLC = white line chip board).

Recycled board consists totally or partially of recycled fibers and is used e.g. for packages of dry foods, as well as packages for other than foodstuffs. WLC board is typically a quadruple or four-layer system, comprising, for example, a base layer (recycled pulp), a filler layer (recycled pulp), a chemical pulp layer, and a coating. Manufacturing amounts of WLC increase all the time, focusing primarily on Asia. While the quality of raw material deteriorates, the quality requirements for a finished product keep increasing and, thus, for example the coating process is commonly performed three times for a sufficient coverage. According to state of the art, the best grade WLC is obtained by pretreating the board surface prior to a coating process with a Yankee cylinder and a profiling machine calender.

It is an object of the present invention to provide an improved finishing method for producing grades of board, especially WLC boards, distinctly smoother and lighter than those available at present. In order to achieve this objective, a method of the invention is characterized in that the method comprises first subjecting a board web to machine calendering, followed by subjecting the web to a pre-coating process, then by running the web through a long-nip calender and further to an actual coating station/stations for applying one or more coating layers to the web surface, and finally subjecting the web to calender finishing. Downstream of the actual coating station, upstream of calender finishing, the web can be further subjected to additional coating by blade coating for improving the web even further in terms of its smoothness and gloss.

The invention will now be described in more detail with reference to the accompanying drawing, in which:

Fig. 1 shows schematically the composition of a typical WLC board, and

Fig. 2 shows schematically one arrangement for implementing a method of the invention.

Fig. 1 depicts schematically a multi-layer structure for one WLC board, which in the illustrated embodiment comprises a base layer 1 of recycled pulp, a filler layer 2, likewise of recycled pulp, a pulp layer 3, and a coating 4 which may consist of several coating layers.

The exemplary embodiment of fig. 2 depicts one finishing method of the invention, wherein a board web W is first passed through a machine calender 10 for profiling its thickness. This is followed by passing the web to a blade coating station 11 for pre-coating in order to improve the web smoothness. Then the web is driven through a long-nip calender, for example a shoe calender 12, as shown in fig. 2, or a belt calender, for improving the topography of web surface. The long-nip calender is followed by passing the web to an actual coating station, which can be for example a spray coating station 13, a curtain coating station, or an Opticoat Duo coating station. In this coating station, the web surface is provided with one or more coating layers for achieving a desired coverage. After the coating process, the web is still subjected to calender finishing, for example with a soft calender 14 or a multi-roll calender for improving the web smoothness and gloss. According to the invention, downstream of the actual coating station and upstream of calender finishing, it is further possible to optionally employ a blade coating for still improving the web smoothness and gloss.

Claims

1. A method for finishing board, especially recycled board (WLC), **characterized** in that the method comprises first subjecting a board web (W) to machine calendering (10), followed by subjecting the web to a pre-coating process (11), then by running the web through a long-nip calender (12) and further to an actual coating station (13) for applying one or more coating layers to the web surface, and finally subjecting the web to calender finishing (14).

2. A method as set forth in claim 1, **characterized** in that the pre-coating process is performed by blade coating (11).

3. A method as set forth in claim 1, **characterized** in that the pre-coating process is performed by rod coating.

4. A method as set forth in any of claims 1-3, **characterized** in that the actual coating is performed by spray coating (13), curtain coating, or Opticoat Duo coating.

5. A method as set forth in any of the preceding claims, **characterized** in that the calender finishing is performed by means of a soft calender (14) or a multi-roll calender.

6. A method as set forth in any of the preceding claims, **characterized** in that, downstream of the actual coating and upstream of the calender finishing, the method comprises performing an optional additional coating process by blade coating.

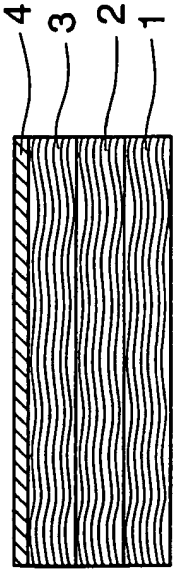

Fig.1

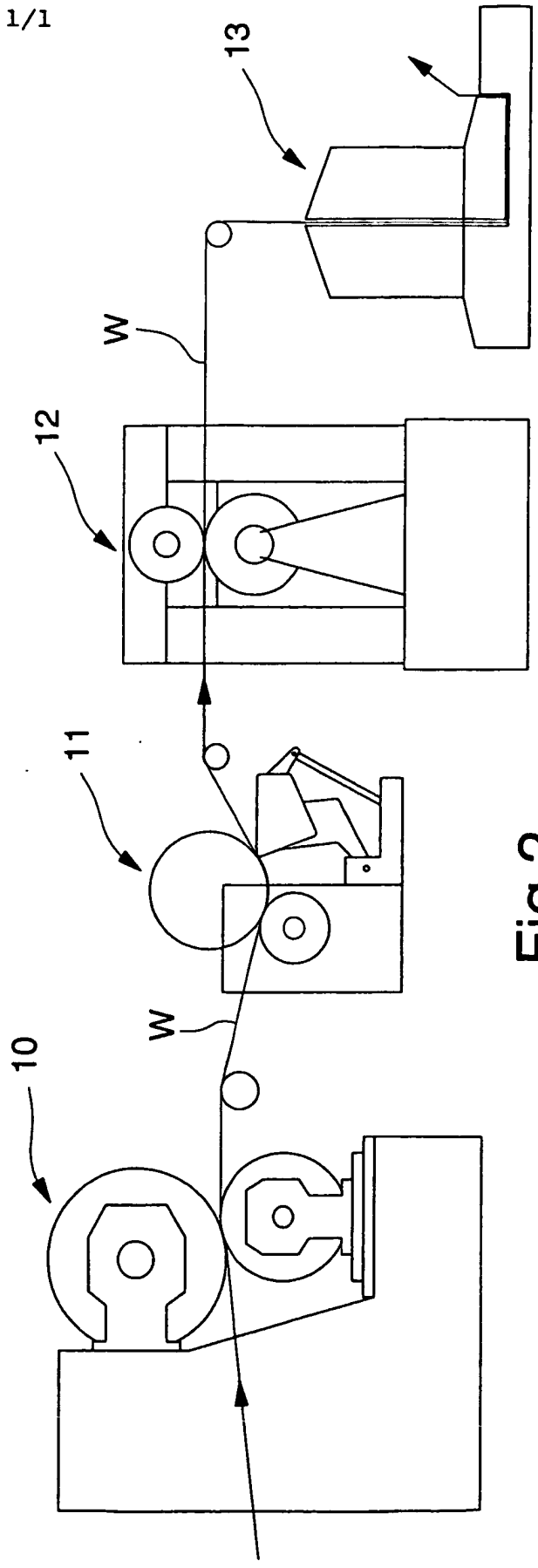

Fig.2

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A. CLASSIFICATION OF SUBJECT MATTER

IPC7: D21G 1/00, D21F 11/00 // D21H 19/00
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 0070146 A2 (VALMET CORPORATION), 23 November 2000 (23.11.00), page 12, line 19 - page 13, line 29, abstract --	1-6
Y	WO 9967462 A1 (VALMET CORPORATION), 29 December 1999 (29.12.99), page 4, line 1 - line 3, claim 1, abstract --	1-6
A	WO 0070144 A1 (VALMET CORPORATION), 23 November 2000 (23.11.00), abstract --	1-6

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents:
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"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 March 2003	19 -03- 2003
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Nina Bergström/ELY Telephone No. +46 8 782 25 00

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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Information on patent family members

30/12/02

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